

**Title:** Bilinear Decompositions of The Products of Hardy and Lipschitz or BMO Spaces Through Wavelets

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**Abstract:** In this talk, we will consider the bilinear decompositions of the products of some Hardy spaces and their duals. We will discuss the bilinear decompositions of the product spaces  $H^p(\mathbb{R}^n) \times \dot{\Lambda}_\alpha(\mathbb{R}^n)$  and  $H^p(\mathbb{R}^n) \times \Lambda_\alpha(\mathbb{R}^n)$ , where, for all  $p \in (\frac{n}{n+1}, 1)$  and  $\alpha := n(\frac{1}{p} - 1)$ ,  $H^p(\mathbb{R}^n)$  is the classical real Hardy space, and  $\dot{\Lambda}_\alpha$  and  $\Lambda_\alpha$  are, respectively, the homogeneous and inhomogeneous Lipschitz spaces. Sharpness of these two bilinear decompositions are discussed. Moreover, we will also talk about the corresponding bilinear decompositions of the associated local product spaces. As an application, we consider some div-curl lemmas at the endpoint case.